City of Eugene, Oregon
Stormwater Management Plan

In Accordance with the
Requirements of National Pollutant
Discharge Elimination System (NPDES) Permit
Number 101244, File Number 107989

December 2005

STORMWATER MANAGEMENT PLAN

The City of Eugene's Stormwater Management Plan (SWMP) includes 23 best management practices (BMPs) designed to reduce the discharge of stormwater pollutants to the maximum extent practicable. Each BMP is given a code (for example, A1) for tracking and reporting purposes; the coding is based on the City work section with lead responsibility, as follows:

A = Administration Division of Public Works
B = Building Division of Planning and Development
E = Engineering Division of Public Works
M = Maintenance Division of Public Works
P = Parks and Open Space Division of Public Works
W = Wastewater Division of Public Works

The 23 BMPs fall into seven general categories: Public Education; Planning, Capital Improvements, and Data Management; Construction Site Management and Design Standards for New Development; Operations and Maintenance; Illicit Discharge Controls; Waste Management; and Industrial Controls. The categories are described as follows:

Public Education

The purpose of public education BMPs is to inform the public, the commercial/industrial sector, and in-house personnel about the sources and causes of stormwater pollution, its effect on the local receiving waters, and to encourage active involvement (e.g. behavioral changes, volunteerism, etc.) in the effort to reduce pollution.

- A1 Best Management Practices for Businesses
- A2 Stormwater Education
- P1 Educational Volunteer Activities

Planning, Capital Improvements, and Data Management

The purpose of planning, capital improvements and data management is to develop and implement comprehensive stormwater basin plans, evaluate potential sources of specific pollutants and related BMPs to address them, evaluate the impact of city activities on water quality, maintain up to date data on the stormwater system, and coordinate system information between departments and agencies for multiple applications.

- E1 Stormwater Basin Master Plans
- E3 Stormwater System Mapping and Data Management
- W1 Address Impacts of City Activities on Water Quality
- W3 Bacteria Pilot Study

Construction Site Management and New Development Standards

The purpose of the construction site management and design standards for new development BMPs is to ensure that appropriate control measures are considered, implemented, and maintained during and after the planning, design, and construction phases for new public and private development and significant re-development projects.

E2 Erosion Prevention and Construction Site Management Program
E4 Stormwater Development Standards

Operations and Maintenance

The purpose of operations and maintenance BMPs is to maintain the publicly managed stormwater system (e.g. pipes, culverts, open waterways, water quality facilities), balancing flood control, drainage services, water quality, and natural resource protection needs, and to adaptively manage for continuous improvement of current operations and maintenance practices. Operations and maintenance BMPs are also focused on planning and performing other City services, such as landscape maintenance or road repair projects in a manner that minimizes the potential for stormwater pollution from these activities.

M4 Prevent Leaks and Spills from Municipal Vehicles and Equipment
M5 Public Stormwater System Cleaning Programs
M6 Street Sweeping Program
M8 Winter Road Sanding and De-Icing Program
P2 Revise Comprehensive O&M Plans
P3 Tree Planting and Urban Forest Enhancement
P4 Public Landscape and Vegetation Management

Illicit Discharge Controls

The purpose of illicit discharge BMPs is to become aware of, investigate, detect, mitigate, and enforce the elimination of illicit (non-stormwater) discharges and illegal dumping to the stormwater system.

M1 Enforcement for Illicit Discharges
M2 Environmental Spill Response Team
M3 Litter and Illegal Dumping Programs
M7 Systematic Field Investigation for Improper Discharges

Waste Management

The purpose of the waste management BMPs is to educate the public, regulate waste management services, and to ensure proper facilities are available in order to minimize the potential of negative stormwater impacts from solid waste collection, improper disposal of toxic materials, and illegal dumping of garbage and debris.

B1 Household Hazardous Waste Disposal
B2 Solid Waste Management

Industrial Controls

The purpose of industrial controls is to provide oversight of stormwater discharges from industrial facilities, including screening, inspections, technical assistance, and response to spills at permitted facilities.

W2 Industrial Stormwater Management Program

A set of fact sheets for each SWMP BMP follows Table 1. The BMP fact sheets reflect the on-going nature of most of the BMPs, including continued adaptive management efforts to improve BMP effectiveness and thus enhance water quality.

Table 1
Stormwater Management Plan Best Management Practices

BMP#	BMP Title
A1	Best Management Practices for Businesses
A2	Stormwater Education
E1	Stormwater Basin Master Plans
E2	Erosion Prevention & Construction Site Management Program
E3	Stormwater System Mapping and Data Management
E4	Stormwater Development Standards
M1	Enforcement for Illicit Discharges
M2	Environmental Spill Response Team
M3	Litter & Illegal Dumping Programs
M4	Prevent Leaks and Spills from Municipal Vehicles and Equipment
M5	Public Stormwater System Cleaning Programs
M6	Street Sweeping Program
M7	Systematic Field Investigation for Improper Discharges
M8	Winter Road Sanding and De-Icing Program
P1	Educational Volunteer Activities
P2	Revise Comprehensive O&M Plans
P3	Tree Planting and Urban Forest Enhancement
P4	Public Landscape and Vegetation Management
B1	Household Hazardous Waste Disposal
B2	Solid Waste Management
W1	Address Impacts of City Activities on Water Quality
W2	Industrial Stormwater Management Program
W3 (new as of 2005)	Bacteria Pilot Study

Source: Second Annual Report Part II – Evaluation Report (December 2005)

A1 BMP Fact Sheet
Best Management Practice for Businesses

Responsible Department/Division:
Public Works / Administration Division

BMP Contact:
Administration Division Director

BMP Description:
Continue efforts to plan, develop and implement a comprehensive program to educate commercial and industrial businesses about best management practices that can help prevent and reduce stormwater quality impacts to the public stormwater system and local receiving waters.

Background:
Many businesses, be they industrial sites, commercial sites or mobile service delivery enterprises have the potential to create negative impacts to stormwater quality through both their site management and operational practices. These include but are not limited to: housekeeping practices for outdoor storage and operations areas; uncovered storage and movement of business products that are a potential pollutant source, trash and waste product site management, vehicle maintenance and washing practices, discharge and disposal practices for liquid business waste products, use of chemicals or other products outdoors, and the care and cleanliness of field operations and service delivery practices. A program to educate business owners and employees about the potential impacts to stormwater quality from their business practices and to provide them with more environmentally friendly alternatives is critical to helping eliminate business related pollutants at the source.

BMP Activities:
- Research business programs offered in other communities and determine which programs could be implemented in Eugene. Where feasible, use an "environmentally friendly" business program model which recognizes businesses that contribute to improved stormwater quality through good business practices.
- Develop an educational outreach for new businesses that gives them general information about stormwater pollution and the potential impacts their business may have on stormwater quality. Provide follow-up in the form of additional educational information (brochures, fact sheets, videos) specific to their business, on-site educational visit and/or technical assistance.
- Identify existing businesses to inform and educate about stormwater pollution issues. Target specific groups through mailouts or other means of outreach.
- Conduct a business awareness effort targeted at landscape maintenance enterprises, local nurseries, University of Oregon, large corporations with their own grounds maintenance staff, property management companies, and local school districts on the proper use of pesticides, herbicides, etc.
- Include information in educational materials about the sources of problem pollutants in stormwater including lead, mercury, and bacteria, and actions private landowners and business owners can take to eliminate these pollutants from stormwater runoff.
- Include information in educational brochures and newsletters about the causes of low dissolved oxygen in receiving waters, and the actions private landowners and businesses can take to minimize depletion of stream water dissolved oxygen.

- Continue to work collaboratively with Public Works Enforcement Group to target business/industry groups most prone to pollution enforcement violations and develop specific educational outreach campaigns designed to improve pollution awareness. Outreach may include industry specific workshops, development of fact sheets, newsletters, training manuals and/or mail-outs, or media campaigns.
- In conjunction with BMP M1 (Enforcement for Improper Discharges), W2 (Industrial Monitoring Program), and E2 (Erosion Prevention and Construction Site Management Program), use investigation of illicit discharges and industrial and construction site inspections as opportunities to distribute educational materials.
- Continue participation with inter-agency pollution prevention group designed to share information and improve educational outreach to businesses and community members.

Assessment Methods:

- Maintain records of materials distributed, audiences targeted and number of people participating in outreach presentations/on-site educational visits.
- Request feedback on usefulness of educational materials, and obtain suggestions for future activities and materials.
- Track number of businesses participating in "clean business" programs for specific service types.

A2 BMP Fact Sheet
Stormwater Education

Responsible Department/Division:
Public Works Administration Division

BMP Contact:
Administration Division Director

BMP Description:
Continue to plan, develop, implement and revise as necessary a program to provide stormwater information and education to homeowners, school children, City and other agency staff as well as the general public about the impacts to stormwater quality and natural resource values from both point and non-point sources of pollution.

Background:
Stormwater pollution from direct and indirect sources continues to have an impact on water quality in local waterways. In particular, the connection to non-point source pollution and associated activities is not readily apparent to many. To raise awareness, offer alternative solutions and generate support for protecting our local waterways, an ongoing education program designed to reach all ages is essential. Stormwater education activities support many of the stormwater program activities by developing education and outreach materials, and providing the means to inform and involve the public in developing or changing areas of the program. (Note: educational BMPs outlined in this BMP will be coordinated with other BMPs when possible.)

BMP Activities:
- Continue to improve, update and expand on educational materials such as videos, web sites, brochures, fact sheets, posters, book marks and booklets to increase awareness of pollution impacts to Eugene's water quality.
- Continue bi-annual newsletter for Citywide distribution with information on methods for improving stormwater quality.
- Develop public education programs to support activities outlined in the Comprehensive Stormwater Management Program.
- Develop on-going campaigns as appropriate to support projects, programs, special opportunities, and targeted pollutants including lead, mercury, and bacteria.
- Include information in educational brochures and newsletters about the causes of low dissolved oxygen in receiving waters, and the actions private landowners and businesses can take to minimize depletion of stream water dissolved oxygen.
- Continue to develop educational materials to support volunteer activities and natural resource protection.
- Continue promotion of SPLASH curriculum for area schools. Explore options to improve upon and expand educational outreach to teachers and students. In addition to classroom presentations and outdoor field trips, pursue other means to get students and teachers involved in hands-on learning opportunities.
- Work collaboratively with other City departments and local agencies to pool resources and continue educational outreach to local community.
- Prepare and staff booths at special events that reach community members such as the Lane County Home Show and Earth Day Celebration.

- Assist in the development of information and outreach materials related to Stormwater Development Standards (BMP E4) Basin Master Plans (BMP E1), and new Bacteria Pilot Study (BMP W3).

Assessment Methods:

- Track quantity of materials distributed, audiences targeted, number of people participating in events etc. Utilize records to plan future development and distribution of educational materials.
- Conduct evaluations at workshops, presentations and seminars offered. Utilize results to plan for future activities and events and to improve upon existing presentation formats.
- Conduct community surveys at 2-year intervals. Compare results to previous surveys to measure increases in level of awareness of stormwater pollution and solutions that public may participate in.
- Research stormwater programs at other agencies for education strategies that might be applied to Eugene's program.
- Monitor phone calls, correspondence and e-mail.

E1 BMP Fact Sheet
Stormwater Basin Master Plans

Responsible Department/Divisions:	**BMP Contacts:**
Public Works / Engineering (implementation)	Engineering Division Director
Public Works / Wastewater (updates)	Wastewater Division Director

BMP Description:
Implement and periodically update the City's 2002 *Stormwater Basin Master Plans* for the Amazon, Willow Creek, Bethel-Danebo, Willakenzie, Laurel Hill and Willamette River basins. Complete and implement the basin master plan for River Road – Santa Clara, in collaboration with Lane County. The basin plans convey a multiple-objective strategy for managing stormwater, and include: basin characteristics under existing and projected future conditions; a prioritized list of capital projects including waterway restoration, piped system upgrades, neighborhood water quality facilities, system rehabilitation, and retrofits of existing stormwater facilities; and other recommended implementation measures such as water quality standards for new development.

Background:
Eugene's updated *Stormwater Basin Master Plans* were completed in 2002 for six of seven identified study areas or basins: *Amazon Creek, Bethel Danebo, Laurel Hill, Willakenzie, Willamette River, and Willow Creek*. The new plans were adopted by Administrative Order in April 2003. A draft basin master plan was developed for *River Road – Santa Clara,* an area with a mix of City and Lane County jurisdiction.

The new plans replace the City's 1990 Area-wide Drainage Master Plans which were focused exclusively on drainage and flood control needs. The new draft plans are multiple-objective in nature (flood control, water quality, stormwater-related natural resources) and are consistent with the adopted policies of the Comprehensive Stormwater Management Plan (CSWMP), the West Eugene Wetlands Plan (WEWP), and the Natural Resources Functional Plan (NRFP). The plans document the basin planning process and outcome, and incorporate recommendations from the Stormwater Department Advisory Committee. They include a 35-year Capital Improvement Plan for each basin, and proposed development standards related to water quality.

In 2004 the City entered into a cooperative agreement with Lane County related to stormwater services. The agreement includes a commitment to collaborate on completing the River Road – Santa Clara Stormwater Basin Master Plan. In 2005, City and County staff developed a workplan, schedule and public involvement plan for completing the River Road – Santa Clara plan.

Capital projects identified in the basin plans are implemented through the Capital Improvement Program, or CIP, process. Proposed development standards are being implemented through ordinance adoption process to modify Eugene City Code (see also BMP E4: Stormwater Development Standards).

BMP Activities:

- Complete the River Road – Santa Clara Basin Master Plan.
- Update the Project Managers Manual to ensure that processes are in place to evaluate the impact of new flood control projects on water quality.
- In implementing the stormwater Capital Improvement Program (i.e., Basin Plans water quality projects), ensure documentation of location, type and other attributes of stormwater capital projects for purposes of evaluating their effectiveness and reporting progress under our permit. Ensure structures and/or mechanisms are in place to enable sampling, testing and evaluating effectiveness of representative facilities.
- Implement Stormwater Basin Master Plan strategies, including capital projects and recommended development standards (BMP E4).
- Evaluate the effectiveness of selected water quality capital projects at removing specific pollutants.
- Update Stormwater Basin Master Plan set at least once every five years.

Assessment Methods:

- Provide a copy of the 2002 *Stormwater Basin Master Plans* to DEQ.
- Ensure that the 2002 *Stormwater Basin Master Plans* are made available for viewing and printing in a variety of ways for ease of use.
- Incorporate projects identified in the Stormwater Basin Master Plans in the City's Capital Improvement Program and budget.
- Maintain a GIS coverage of water quality facilities and projects including such attributes as location, facility type, drainage area, and cost for all new water quality capital projects implemented.
- Selectively monitor certain public water quality facilities to determine effectiveness at removing pollutants.
- Participate in and contribute to regional efforts to evaluate and document the effectiveness of water quality best management practices.

E2 BMP Fact Sheet
Erosion Prevention and Construction Site Management Program

Responsible Department/Division:	**BMP Contact:**
Public Works / Engineering	Engineering Division Director

BMP Description:

Administer and monitor the Erosion Prevention and Construction Site Management Program. Implement program elements which prevent and/or control erosion, sedimentation, and other construction related impacts to stormwater quality within the City limits. Continue education and outreach related to new techniques/practices. Screen projects for sensitive area status, conduct plan reviews, issue permits, conduct inspections, and provide compliance enforcement as appropriate.

Background:
Construction site erosion has the potential to be the most significant source of sediment in stormwater runoff. Sites are susceptible to erosion when vegetation is removed and soils exposed. Once eroded sediments enter waterways, they can block sunlight, limit plant growth, and harm aquatic life by removing oxygen from the water. Other pollutants, including nutrients, bacteria, metals, and some toxic substance, attach to sediments and can thereby also be carried into waterways. Properly managing construction site activities effectively prevents and/or minimizes erosion and sedimentation materials from leaving development sites.

The City adopted an Erosion Prevention Ordinance and an Administrative Order in 1996. All persons engaged in construction activities must implement construction site management practices designed to protect the city's stormwater system. Construction sites larger than one acre or within an identified sensitive area require an erosion permit before any ground disturbance activity. A development site is considered a sensitive area if it meets any one of the following criteria: a) the slope of the parcel is greater than 10%; b) the site contains highly erodible soils; or c) the site has the potential to directly drain into a water feature or the water feature's designated buffer area.

Construction site management practices are the steps taken to prevent erosion, sedimentation, or discharge of contaminants from the construction site. Although there are a wide variety of options to choose from, mandatory practices are required during the wet weather season (October 15 through May 15). Fact sheets and standard drawings are provided for construction activity that does not require an erosion permit. Individual construction site management plans are required for construction activities that require an erosion permit.

BMP Activities:

Continue to monitor and enforce erosion prevention and construction site management practices within Eugene. Key program components include:

- Protect water features adjacent to sites under development with slopes of 10% or greater, or with erodible soils, by requiring permits and construction site management plans.

- Conduct outreach and educational activities for principal players (e.g., construction equipment operators, developers, and inspectors)
- Coordinate with BMP M1 (Enforcement for Improper Discharges) and A1 (Best Management Practices for Businesses).
- Finalize erosion design manual which includes information about proper techniques for erosion prevention as well as implementation guidelines, and make it available to the development community.
- Prepare an annual education program.
- Contract with local construction company for summary abatement of erosion violations.
- Maintain data base for tracking permits, inspections, complaint violations and educational outreach.
- Enforce minimum wet weather erosion prevention BMPs.

Assessment Methods:

- Track the number of complaints received and violations cited.
- Track methods of educational outreach conducted, frequency of outreach, attendance at outreach events, and feedback from participants.
- Track annual number of erosion permits and inspections.
- Track annual permit renewals monthly.
- Provide final erosion design manual to local contractors and DEQ.

E3 BMP Fact Sheet
Stormwater System Mapping and Data Management

Responsible Department/Division:	**BMP Contact:**
Public Works / Engineering	Engineering Division Director

BMP Description:
Keep up-to-date inventories and maps of the public and private, natural and constructed, stormwater system. Include mapping of water quality and flow control facilities such as grassy swales and detention basins. Develop and integrate asset inventory data and geographic information system (GIS) systems which describe the conveyance system, water quality attributes and related natural resource information. Integrate information generated through BMPs such as E1 and E4 which create or modify system components and/or change the attributes of the stormwater system.

Background:
Mapping and data management provides valuable supporting information which allows the City to effectively accomplish many elements of the NPDES permit requirements. For example, an accurate inventory and mapping of open waterways is critical to implementation of water quality protection measures related to open waterways.

Stormwater infrastructure layers are updated on a weekly and monthly basis on the GIS and asset inventory systems. Sources of update information are stormwater drainage studies, as-construct drawing of capital projects, and observations in the field by engineers and maintenance crews.

Software applications utilizing this data are developed and maintained to provide on-line access to system information for staff involved in all aspects of system planning, administration, analysis, operations and maintenance. Paper map sets reflecting updated system information are produced annually for use by field personnel.

BMP Activities:
- Update stormwater system inventory and GIS on a weekly and monthly basis
- Develop, upgrade and maintain software applications which make system information available to staff.
- Update stormwater infrastructure paper map sets annually.
- Along with adoption of Stormwater Development Standards (E4), help to ensure that data management needs are identified and protocols established for documenting appropriate information to ensure that operations and maintenance, inspection and enforcement, and BMP effectiveness objectives are met.
- In implementing the capital improvement projects outlined in the 2002 Stormwater Basin Master Plans, help to ensure documentation of location, type and other attributes of stormwater capital projects for purposes of evaluating their effectiveness and reporting progress under our permit.

Assessment Methods:

- Report on map and database update activities annually.
- Survey map and data system users bi-annually.

E4 BMP Fact Sheet
Stormwater Development Standards

Responsible Department/Division:	**BMP Contact:**
Public Works / Engineering	Engineering Division Director

BMP Description:
Finalize, implement, and enforce stormwater development standards: regulations for locating, designing, constructing, and maintaining water quality facilities for new development and significant re-development. (Note: Stormwater development standards are controls for post-construction water quality. Standards for erosion control during construction related to new development are covered under BMP E2).

Background:
There is a direct link between impervious surfaces associated with stormwater runoff from urban development and the quality of the City's surface and ground waters. As properties develop, the impervious surfaces that are created increase the amount of runoff during rainfall events, disrupting the natural hydrologic cycle. Without control, these conditions erode stream channels and limit groundwater recharge. New and expanded parking lots, roadways, and rooftops increase the pollution levels in stormwater runoff that is transported to streams, rivers, and groundwater resources. Protecting these waters is vital for a great number of uses, including fish and wildlife habitat, recreation, and drinking water.

The City's proposed stormwater development standards will: address future water quality impacts from new development; address the existing water quality condition through re-development; ensure that sensitive headwater streams are not further impacted from new development; and address high pollutant land uses and activities.

Stormwater development standards will be implemented by adoption of an ordinance and associated design manual, establishment of an inspection/enforcement program, identification and budgeting of necessary resources to implement the new program, training related to the new requirements, evaluation, and adaptive management.

BMP Activities:
- Complete review process with Stormwater Department Advisory Committee, a group of citizens providing feedback on City staff recommendations.
- Conduct presentations to stakeholder groups and host an open house to obtain feedback on the proposed standards in advance of the adoption process.
- Determine personnel needs to oversee the design review, inspection, enforcement, monitoring and maintenance of water quality facilities.
- Review Street Design Standards for consistency with water quality standards; evaluate the need for any revisions to street design standards or related implementation processes.
- Finalize the draft stormwater development standards and process for adoption by elected officials by the end of Permit Year Three.
- Provide education and training for City staff and the design and development community.

- Establish an inspection and enforcement program to ensure compliance with construction, operations and maintenance requirements for water quality facilities.
- Implement new stormwater management requirements by the end of Permit Year Three.
- Develop a method for assessing the effectiveness of the stormwater development standards and associated facilities.
- Develop an on-going method for identifying proposed capital projects where water quality standards should be incorporated, and develop a method for incorporating the new standards.
- Review the design manual every three years and update as appropriate, to reflect changing conditions, evolving technology, and lessons learned.

Assessment Methods:

- Number of outreach events, including Public Works Stormwater Department Advisory Committee meetings and presentations to special interest groups.
- Number of training workshops and workshop attendance.
- Copy of ordinance and associated design manual to DEQ.
- Number of private projects incorporating water quality facilities.
- Number of public projects incorporating water quality facilities.
- Number of facilities constructed or approved.
- Number of inspections and maintenance activities performed.
- Results of water quality monitoring for selected facilities.

M1 BMP Fact Sheet
Enforcement for Illicit Discharges

Responsible Department/Division:
Public Works Maintenance Division

BMP Contact:
Maintenance Division Director

BMP Description:
The City will attempt to effectively discourage and reduce improper discharges into the stormwater system through continued operation of the existing stormwater discharge compliance enforcement program. The primary goals of this program are to protect the quality of the receiving waters of the City's stormwater system and to ensure that discharges to the City's stormwater system comply with local, state, and federal regulations to the maximum extent practicable. The City will continue to conduct periodic review of enforcement program practices and procedures and make revisions as deemed necessary.

Background:
Schedule A of the City's NPDES stormwater permit requires the City to: "Reduce the discharge of pollutants from the municipal separate storm sewer system to the maximum extent practicable" and to "effectively prohibit non-stormwater discharges into the Municipal Separate Storm Sewer system unless such discharges are otherwise permitted by an existing…NPDES permit…" The term illicit discharge is defined in the City's NPDES permit as "…any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to an existing NPDES permit and discharges resulting from emergency firefighting activities."

To comply with NPDES requirements, the City of Eugene currently has extensive municipal code language prohibiting the discharge of any material other than stormwater into the public stormwater system unless permitted by the state. In addition to the code language, the City has an Administrative Order which establishes mechanisms for issuing a civil penalty when a responsible party is in violation of the City code. To support the City code a Stormwater Investigation and Enforcement Program has been established.

The primary goals of the stormwater pollution enforcement program are to:

1) Protect the City's receiving waters quality;
2) Ensure that discharges to the City stormwater system are in compliance with local, state, and federal regulations; and
3) Comply with requirements of the City's NPDES permit.

The primary objectives of the enforcement program are to:

a) Discourage violations of stormwater regulations through enforcement action;
b) Provide an effective and safe stormwater system for the public and City staff;
c) Protect the City's stormwater infrastructure; and
d) Reduce flooding or infrastructure failure resulting from illicit discharges to the system.

BMP Activities:

- Follow the guidelines established in the Stormwater Investigation and Enforcement Manual (Updated August, 2002).
- Receive improper discharge complaint from property owner, concerned citizen, City staff, other agencies, etc.
- Respond to the complaint site and make initial assessment.
- Determine if the discharge material is hazardous, non-hazardous, or unknown. If the material is hazardous or unknown call for the Eugene Fire Department Hazmat Team or a hazardous material mitigation contractor.
- Complete information will be gathered by PWM response personnel, including photographs, and entered into the "Cassworks" database.
- The source of the prohibited discharge will be determined and eliminated if possible.
- A responsible party will be determined if possible.
- If a source and responsible party are identified, efforts will be made to obtain voluntary cooperation from the party by eliminating this, and any future, discharge occurrences, and to clean up the discharge material from private and public property.
- The responsible party will be given educational materials concerning the storm sewer system and discharge requirements.
- PWM staff will determine if a discharge violation has occurred.
- If a violation has occurred, the responsible party will be sent a courtesy letter or Notice of Violation providing more information on possible impacts of repeated violations, as well as suggestions for compliance with established stormwater discharge codes.
- If a point source is not identified or if a responsible party can not be established, PWM will commence clean-up actions on public property and isolate the discharging material from the public stormwater system.
- All actions, impacts, and results will be entered into the "Cassworks" MMI system.
- Any abatement cost recovery and/or penalty will be determined after a review of site-specific conditions, actions and past history.

Assessment Methods:

- For noted violations, the City will take appropriate enforcement actions to correct the problems and discourage repeat violations.
- To assess program effectiveness, total violations and repeat violations will be tracked over time. Program practices will be adjusted as necessary to achieve the desired results**.**
- Number of spills or discharge complaints reported or received
- Site visits conducted
- Investigation hours
- Discharged material identifications
- Responsible party tracking
- Tracking of information requests
- Notice of Violations issued
- Letters sent out (warnings, educational, code information)
- Abatement costs billings
- Civil penalties assessed

M2 BMP Fact Sheet
Environmental Spill Response Team

Responsible Department/Division:
Public Works Maintenance Division

BMP Contact:
Maintenance Division Director

BMP Description:
Maintain an on-call team trained in spill response procedures involving environmentally hazardous materials and a vehicle equipped for such spill mitigation. Coordinate efforts with other local response teams such as the City of Eugene Fire and Police Departments, Lane County, and state agencies.

Background:
Schedule A of the City of Eugene's NPDES permit requires the City to: "Reduce the discharge of pollutants from the municipal separate storm sewer system to the maximum extent practicable" and to "effectively prohibit non-stormwater discharges into the Municipal Separate Storm Sewer system unless such discharges are otherwise permitted by an existing…NPDES permit…" The term illicit discharge is defined in the City's NPDES permit as "…any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to an existing NPDES permit and discharges resulting from firefighting activities."

The City's Public Works Department is responsible for protecting the City's infrastructure and drainage ways from environmentally harmful spills and discharges. Quite often, Public Works staff is the first to discover discharges of materials that present a threat to the environment. Frequently the discharged or dumped material has entered or has the immediate potential to enter the piped stormwater system or an open drainage way. Trained staff respond to spills of minor magnitude as a matter of routine operations and maintenance procedures.

To be prepared for a large, potentially damaging spill, the Department's Maintenance Division keeps a team of twenty to thirty staff members trained in emergency spill response and clean-up. All work teams within the Division are represented, providing the Department with a pool of trained and variously skilled staff that might prove necessary in the event of a major spill or other environmentally threatening situation. Trained on-call personnel include operators of equipment such as jet/vacuum machines, street sweepers, back-hoes, and hydraulic excavators as well as a team of Public Works supervisors trained in the Incident Command system.

The Public Works Department will continue to provide necessary and appropriate training to staff in both defensive hazardous materials response and in the mitigation of environmentally threatening spills. However, Public Works staff will not normally perform mitigation of spills where respiratory protection and/or self-contained breathing apparatus are required. The State Region 2 Hazmat Team, staffed by the Eugene Fire Department, will continue to take lead in these situations. Public Works will continue to equip, maintain, and periodically upgrade a vehicle for the express purpose of spill response in the urban area. Additionally, staff will continue to coordinate response procedures with other local agencies and participate in area emergency response drills when appropriate.

BMP Activities:

- Identify and provide training for those Public Works Maintenance positions which could be reasonably expected to encounter and/or participate in emergency spill response and/or clean-up activities.
- Maintain an employee listing of those trained in Hazmat First Response.
- Provide 16-hour First Responder training and 40-hour Hazmat Responder training for the appropriate positions.
- Provide Incident Command System training for all PWM Supervisors.
- Participate in table top exercises and drills with other local agencies.
- Equip all PWM vehicles with copies of the current version of the US DOT Emergency Response Guidebook.
- The PWM Spill Response Technical Specialist will maintain the spill response vehicle with an adequate supply of spill response materials and equipment.
- If the PWM employee is the first on the scene of a spill or discharge potentially hazardous to the environment, he/she will assume Incident Command until relieved by a higher authority. This will include isolating the area if possible, or keeping the public away from the area.
- Eugene Police and Fire dispatch will be notified in the event of a potential hazard and will assume Incident Command upon arrival at the site.
- PWM staff will assist in clean up at the direction of IC, or when IC has been transferred back to Public Works.
- Assist the Eugene Police Dept. (EPD) and the Eugene Fire Dept. (EPD) with vehicle accident clean-up.

Assessment Methods:

- Record number of spills or discharge complaints reported or received
- Track number of information requests
- Track number of site visits conducted
- Track discharged material information
- Track warning letters, notice of violations, abatement costs, and penalties assessed.
- To assess program effectiveness, total violations and repeat violations will be tracked over time. Program practices will be adjusted as necessary to achieve the desired results.
- For noted violations, the City will take appropriate enforcement actions to correct the problems and discourage repeat violations.

M3 BMP Fact Sheet
Litter and Illegal Dumping Programs

Responsible Department/Division:
Public Works Maintenance Division and

Parks and Open Space Division

BMP Contact:
Maintenance Division Director

Parks and Open Space Division Director

BMP Description:
Continue existing program of providing and maintaining trash receptacles in strategic publicly owned sites and in providing trash receptacles and collecting litter during major public events. Continue existing program of systematic inspection for and as-needed clean up of illegal dump sites. Conduct on-going evaluation of programs, monitor trends in litter and illegal dumping practices, and revise and/or expand programs as necessary and appropriate.

Background:
Primary goals of the program are to keep litter and trash contaminants from entering the stormwater piped conveyance system, open waterways and wetlands areas of the community. In addition, this task is done to create a cleaner and healthier urban environment for the citizenry that uses the public areas of the community.

BMP Activities:
- Litter in City Parks is picked up and trash receptacles are emptied seven days a week.
- When reservations are made for park facilities, a clean-up deposit fee is collected in advance.
- Trash receptacles and collection are provided for all the City-sponsored outdoor public events in parks, on public streets, or on other public property.
- City currently picks up litter and empties trash receptacles from selected commercial areas, parking lots and garages, and the pedestrian mall on a daily basis.
- Litter on streets is removed by street sweeping activities and frequency is based on street designation and traffic use.
- All litter and trash swept from streets and alleys is sorted and recyclable material is removed with remaining debris disposed in a landfill.
- Major drainage channels are inspected weekly and illegally dumped debris and garbage is removed and recycled when possible with any remaining material being disposed in a landfill.
- Specific sites along open waterways or dead end streets that are frequently used for illegal dumping or homeless camping have been identified and are monitored and cleaned up on a regular schedule. The City attempts to identify the responsible party and then removes the debris as soon as possible so as to discourage additional dumping or camping.
- City streets, alleys, and bike paths are systematically inspected and cleaned on a routine schedule. Inspection frequency is determined by historic illegal dumping activity and by established sweeping routes.

- City responds to reports from the public, notification from sweeper operators or other City maintenance staff of debris dumped on sidewalks, alleys, open waterways and any other public areas.

Assessment Methods:

- Document the number and placement of new trash receptacles and litter picked up as well as the number of outdoor public events where trash receptacles and litter collection is provided.
- Document the location and quantity of illegally dumped debris picked up and removed from public rights-of-way, parks, drainage channels, roadside ditches, creeks and rivers by POS staff and by the County Sheriff's work crew. (This includes the number of syringes and other biohazards collected.)
- When available, data include the quantities of litter and dumped debris that is removed by volunteer program efforts.

M4 BMP Fact Sheet
Prevent Leaks and Spills from Municipal Vehicles and Equipment

Responsible Department/Division:
Public Works Maintenance Division

BMP Contact:
Maintenance Division Director

BMP Description:
Continue existing preventive maintenance program for all municipal vehicles and equipment in order to prevent or correct sources of vehicle fluid leaks. Continue to implement employee education practices and field operations procedures to detect and report leaks and to prevent incidences of fluid and material spills from municipal vehicles. Continue program of equipping municipal trucks and large mechanized equipment with renewable, spill response kits.

Background:
An on-going preventative maintenance program has resulted in a reduction of possible vehicle fluid spills from municipal vehicles and equipment. Since 1997, custom-made spill kits have been issued for nearly every public works vehicle. Vehicle spill kits are now a standard issue item from the Maintenance Division Tool Crib. Spill kit effectiveness continues to be monitored.

This BMP includes application of structural BMPs when control measures are deemed necessary for municipal facilities with high potential for leaks and spills, such as service vehicle/heavy equipment yards.

BMP Activities:
- All municipal cars, service vehicles, fire apparatus, and large mechanized equipment are inspected and serviced on a routine and frequent basis.
- Vehicles found with fluid leaks or with worn/frayed hydraulic lines are either repaired immediately or taken out of service until necessary repairs can be made.
- All public works vehicles and equipment are issued custom, renewable, spill kits as a standard issue item from the Maintenance Division Tool Crib.
- Staff will replenish materials as the spill kits are used.
- Staff will issue kits to new Maintenance Division and Public Works vehicles and equipment as appropriate.
- The spill kit program will continue to be monitored for effectiveness.
- A stormwater quality structure was installed at the Public Works Roosevelt Yard to treat storm runoff for sediments, oil, grease, and floatables.
- The performance of the structural BMP will continue to be monitored.
- Service vehicle and equipment operators are both trained to conduct routine vehicle inspections and are periodically reminded to be especially careful of spilling while performing fueling or lubricating procedures.
- Fueling islands are stocked with absorbent material close at hand so small fuel spills can be cleaned up before they are tracked out into exposed areas.
- Staff will continue to evaluate new service vehicle and equipment purchases to look for opportunities to minimize the potential for materials spills.

- Fleet Services is currently evaluating the use of a new more environmentally friendly hydraulic oil for Parks and Open Space equipment which is used in the wetlands.

Assessment Methods:

- Document type, frequency, mileage interval, and leak related problems found for both scheduled and unscheduled vehicle maintenance service.
- Conduct ongoing tracking and logging spill kit issuance and usage.
- Document significant incidents of spills or fluid releases from City vehicles.
- Use Fleet Management System to track preventive maintenance inspections and track analysis for fuel, oil, coolant etc. consumption for all City-owned equipment

M5 BMP Fact Sheet
Public Stormwater System Cleaning Programs

Responsible Department/Division:
Public Works Maintenance Division

BMP Contact:
Maintenance Division Director

BMP Description:
Continue existing program which includes: frequent, systematic cleaning of the components of the public stormwater system such as catch basins, pipes, culverts, inlets, and stormwater quality devices; removal of sediment deposits and cleaning out of accumulated debris from open drainageways as-needed; annual curbside pickup of leaves on all City streets to prevent plugging catch basins or being discharged into local receiving waters and; documenting quantities of material removed from each structure and the type and quantity of stormwater pollutants found. Using the maintenance management system, develop methods to identify sites requiring more frequent cleaning or show a history of continuing pollution problems. Research and monitor developments in maintenance technology and methods for both piped systems and open channels that further minimize impacts to stormwater quality and natural resource values. Revise cleaning practices as necessary and appropriate.

Background:
Schedule A of the City of Eugene's NPDES permit requires the City to: "Reduce the discharge of pollutants from the municipal separate storm sewer system to the maximum extent practicable" and to "effectively prohibit non-stormwater discharges into the Municipal Separate Storm Sewer system unless such discharges are otherwise permitted by an existing…NPDES permit…" The term illicit discharge is defined in the City's NPDES permit as "…any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to an existing NPDES permit and discharges resulting from firefighting activities."

To assist with compliance of Schedule A requirements, City crews routinely remove accumulated sediments, debris, and other pollutants from the piped stormwater infrastructure and open waterways. All stormwater conveyance lines with a history of potential conveyance problems are tracked and each fall those lines are cleaned and sawed to ensure full conveyance capacity. Storm drainage system catch basins are inspected and cleaned to prevent localized flooding and to detect potential hazards. Key inlets and outfalls are inspected each fall prior to the rainy season to ensure they are operational and not blocked by vegetation or other debris. All maintenance is done in a way to protect water quality and other natural resources.

Open drainage channel maintenance practices are implemented according to provisions outlined in U.S. Army Corps of Engineers Flood Control Regulations and the Levee Encroachment Standards and Procedures. In addition, open drainage ways are maintained according to the Open Waterway Maintenance Plans. These plans are intended to protect and enhance both stormwater quality and natural resources values while continuing to maintaining sufficient conveyance capacity. City crews also annually undertake a systematic curb-side leaf pick-up program. This program is designed to prevent potentially harmful pollutants from entering public waterways, and to minimize localized flooding during heavy rain events.

BMP Activities:

- Maintain stormwater infrastructure database ("Cassworks").
- Generate "Cassworks" work orders for infrastructure maintenance.
- Seasonally inspect key inlets and outfalls; remove any blocking vegetation or other obstructions.
- Clean catch basins and connecting pipes of accumulated sediment, debris, and other pollutants on a systematic basis.
- Record quantity of debris removed and identify structures requiring more frequent cleaning cycles.
- Evaluate and update systematic cleaning schedules based on information gathered by field observations and analysis of individual loadings and capacity of the system.
- Evaluate system performance.
- Dispose of collected materials at a waste drainage pad at the Lane County Solid Waste Collection Facility.
- Inspect open drainage channels for obstructing vegetation and accumulated sediment and debris; remove obstructing materials in accordance with the Open Waterways Maintenance Plans.
- Place erosion control materials and re-seed exposed soils on channel banks and tops.
- Collect leaves from City streets two months of the year and deliver to requesting citizens, or dispose of at the City's leaf composting site.
- Research new developments in pipe and open channel cleaning equipment, methods, and techniques.
- Revise and adjust system cleaning practices and schedules as appropriate to increase the effectiveness of the program.

Assessment Methods:

- Document number of structures cleaned, quantities and type of materials collected and enter into the "Cassworks" database.
- Document lineal feet of vegetation maintenance performed on public open waterway system.
- Analyze materials collected from problem areas to determine if source can be identified.
- Analyze production data from vacuum trucks on a continual basis and make modifications as necessary to ensure maximum water quality benefits.
- Review weigh tickets from City vehicles disposing of collected materials at County facility.
- Continue periodic review and evaluation of data to identify trends in cleaning frequency, cleaning program efficiency, and system performance problems.
- Record number of Catch Basins cleaned.
- Record amount of debris cleaned from each catch basin.
- Record footage of stormwater lines cleaned, jet or saw.
- Record amount of debris cleared from lines and net tons dumped
- Complete inspection documentation of key inlets and outfalls.
- Complete inspection documentation of open drainage ways and records of debris removal.
- Record tons of leaves collected during curb-side pick-up program.

M6 BMP Fact Sheet
Street Sweeping Program

Responsible Department/Division:
Public Works Maintenance Division

BMP Contact:
Maintenance Division Director

BMP Description:
Continue the existing program of both mechanical brush and vacuum sweeping of publicly maintained roads, bike paths, and parking lots. Perform on-going review of the revised sweeping practices and schedules implemented as part of the City's previous stormwater discharge permit. Continue to monitor and evaluate new developments in sweeping technology and methods and revise the existing sweeping program as appropriate and feasible to maximize water quality benefits.

Background:
The City's NPDES permit requires a proactive approach in preventing (to the extent practicable) the discharge into the public stormwater system any substances other than stormwater. Arterial, collector, residential streets, bike paths, and parking lots receive potential pollutants through daily use. If left alone, pollutants accumulated on such surfaces could affect the quality of receiving waters by being washed into the public stormwater system during rain events. These pollutants could include metals, hydrocarbons, other chemicals, dirt, and other unwanted debris.

Therefore, the City has in place a program for the systematic and comprehensive sweeping of publicly maintained streets, bike paths, and parking lots. The City maintains an aggressive seven-day-a-week, multi-shift sweeping schedule that utilizes a fleet of two mechanical broom sweepers, two regenerative air vacuum sweepers, and a smaller truck chassis-mounted vacuum sweeper. This street sweeping program complements the City's catch basin cleaning and leaf pick-up programs. In addition, City staff conducts ongoing research for new technologies, methods, and expertise related to street sweeping that improves water quality. The existing sweeping program is continually evaluated for effectiveness; modifications in the program are made as necessary to ensure effectiveness in achieving maximum water quality benefits.

BMP Activities:
- Determine the type of sweeper to use in varying conditions.
- Establish sweeper routes and frequencies for optimum effectiveness and efficiency.
- Analyze street sweeping operations on a continual basis and make modifications as necessary to ensure maximum water quality benefits.
- Perform sweeping operations during eighteen of a possible twenty one workshifts per week.
- Establish sweeper debris drop boxes locations strategically throughout the City.
- Dump sweeper debris into drop boxes and have the debris disposed of through contract.
- Maintain records of streets swept and amount and types of material collected.
- Perform analysis of materials collected.
- Sweep behind City leaf pick-up crews to remove remaining debris.
- Evaluate street sweeping technologies and equipment.
- Determine methods and schedule for high pollutant load areas.

Source: Second Annual Report Part II – Evaluation Report (December 2005)

Assessment Methods:

- Document and track the type and frequency of sweeping in residential areas and in high pollutant source areas (downtown, commercial, and industrial areas), the amount of curb miles swept, and the amount of swept material recovered.
- Document any changes to practices or schedules to promote stormwater quality benefits.
- Record the amount of bike paths and alleys swept
- Record the amount of water used and yards of debris collected/dumped
- Record the amount of sweeping performed in support of the leaf pick-up program.

M7 BMP Fact Sheet
Systematic Field Investigation for Improper Discharges

Responsible Department/Division:
Public Works Maintenance Division

BMP Contact:
Maintenance Division Director

BMP Description:
Using a watershed basin approach, the City will systematically inspect all private commercial/industrial stormwater systems that connect to the public drainage system. The purpose of this is to map private systems where no records currently exist and to assess the impacts of the private system on the public system. Where evidence is found that significant levels of pollutants are being introduced to the public system, City staff will work with property owners to correct the problems causing the discharge of pollutants.

Background:
The Systematic Field Investigation (SFI) program was developed to confirm the configuration of the municipal stormwater system and map private connections which have not previously been recorded. In addition, the SFI program identifies and removes sources of pollutants found to be entering the public stormwater system. Once identified significant sites are tracked which may adversely impact the municipal system. Furthermore, additional investigation and follow-up is conducted on systems where evidence exists that pollutants are entering the stormwater system. When a pollutant source is found, steps are taken to prevent further discharge to the system.

BMP Activities:
- City staff will continue a regular pipe system inspection program (systematic field investigation) for potentially high source land uses (i.e. commercial and industrial areas) to detect and identify sites that have obvious potential for illicit discharges.
- Re-evaluate the focus and emphasis of the Systematic Field Investigation program and follow up procedures based on lessons learned over the past 10 years, and new equipment available at Wastewater Treatment Plant lab. Refine program objectives.
- City staff will document the configuration of private systems where no records currently exist. These records will be entered into the City's Geographic Information System.
- During the inspection, City staff may contact a representative of the property and provide the current tenant of the property educational information on stormwater regulations and best management practices.
- If a significant source of pollutants is found, inspection staff will refer the site to the appropriate City staff for follow-up.
- Where problems can not be corrected through voluntary cooperation, code enforcement procedures will be employed which may include notices of violation, penalties, fines, abatement action, and/or referral to state agencies.

Assessment Methods
- Record number of sites inspected
- Record number of map corrections developed

- Assessment will be based on the number of sites inspected, the number of problems noted by staff, and the level of compliance achieved through voluntary means. Refinements and/or adjustments to the program will be made as needed.

M8 BMP Fact Sheet
Winter Road Sanding and De-Icing Program

Responsible Department/Division:
Public Works Maintenance Division

BMP Contact:
Maintenance Division Director

BMP Description:
Continue existing program for the application and cleanup of winter traction sand on publicly maintained roads and parking areas in conjunction with the application of a pre-wetting agent designed to reduce the need for sanding. Continue with research efforts to identify and evaluate new technology and strategies for application of environmentally friendly chemical anti-icing and de-icing agents. Conduct research into new O&M methods, practices, and efficiencies which may further limit the runoff of sanding related pollutants to the storm system.

Background:
The primary goal of this program is to respond to weather related hazards, specifically icy roadways, in a fashion which maintains travel along designated routes. The management of the hazard could have an impact on water quality through the application of materials on a roadway surface. A key component of this program seeks to minimize the impact while meeting the program goals. In addition to applying traction sand during ice and snow events, the City has been authorized to conduct a small pilot program of applying calcium magnesium acetate (CMA). This anti-icing material is environmentally friendly and staff will apply limited quantities to evaluate effectiveness and pollutant potential.

BMP Activities:
- Develop sanding routes to be followed during ice and snow events, including frequencies and priority routes.
- Develop, review, and maintain an ice and snow removal plan manual.
- Designate bridges, overpasses, and streets to receive CMA under the pilot program.
- Inspect and pre-service the sanders in the fall.
- Stockpile traction sand at the Roosevelt Yard Maintenance facility.
- Ensure that a sufficient amount of trained sander operators are available.
- Activate the Emergency Command Center (ECC) at the Roosevelt Yard as necessary during ice and snow events.
- Apply sand to roadways in accordance with the ice and snow removal plan.
- Apply CMA to designated infrastructure in anticipation of ice events.
- Evaluate CMA effectiveness and pollutant potential.
- As soon as practicable after the ice or snow event, remove the traction sand by street sweeping with air and/or broom sweepers.
- Dispose of the recovered sand at the Roosevelt Yard facility for later use as backfill for sewer and street excavation projects.

Assessment Methods:
- Document the quantities of sanding material applied and collected during each storm event.

- Document the number of curb miles sanded and collected during each storm event.
- Document findings related to improved sanding application and cleanup practices as well as for evaluation of new chemical de-icing products and technology.
- Sanding: Date, operator, equipment ID, quantity of sand used, total hours, weather condition, total miles, routes sanded
- Sweeping: Date, operator, hours, equipment ID, estimated yards recovered, date completed

P1 BMP Fact Sheet
Educational Volunteer Activities

Responsible Department/Division:
Public Works / Parks and Open Space Division

BMP Contact:
Parks and Open Space Division Director

BMP Description:
Continue to refine the City's existing Stream Team volunteer program to involve citizens of all ages and socio-economic backgrounds in meaningful, hands-on and educationally oriented projects and activities related to protecting stormwater quality, promoting the use of native vegetation, and enhancing fish and wildlife habitat within the local urban related watershed.

Background:
In conjunction with other, more formal, stormwater education programs, an aggressive, hands-on stormwater and natural resource enhancement volunteer program is an effective way to educate a wide segment of the populace about the impacts of non-point stormwater pollution. By providing both educational presentations to help promote the program and in-the-field activities such as work parties, interpretive tours and water quality and wildlife monitoring to name just a few, the City's Stream Team program can both teach the value of urban natural resource area as well as foster citizen stewardship of local streams, ponds and wetlands.

BMP Activities:
- Recruit, coordinate, support, and provide the educational focus for Stream Team volunteers involved in the following ways: group adoption of natural areas associated with the stormwater system (such as Amazon Creek, local ponds, streams and wetlands); ad hoc volunteer projects; and site monitoring.
- Provide volunteers with the necessary tools and guidance in the following areas: remove debris and invasive vegetation, plant and maintain native vegetation, collect native plant seeds, salvage native plants, operate and maintain a native plant nursery; monitor portions of the stormwater system; conduct fish and wildlife monitoring and perform other education water related activities.
- Provide support for on-going educational campaigns (BMPs A1 and A2) for certain problem pollutants in Eugene's stormwater runoff including lead, mercury and bacteria.
- Provide support for educational campaigns (BMPs A1 and A2) about the causes of low dissolved oxygen in receiving waters, and the actions private landowners and businesses can take to minimize depletion of stream water dissolved oxygen.
- Contribute articles and Stream Team information to the City's Stormwater Connections and Eugene Outdoors newsletters which are distributed bi-annually in local newspaper.
- Develop news releases and City Council newsletter articles to promote significant Stream Team Volunteer activities.
- Provide educational materials (such as videos focused on local stormwater and wetland issues) and make presentations to interested groups and school classes upon request.
- Produce a regularly scheduled Stream Team newsletter and distribute to program volunteers and others upon request.
- Hold semi-annual celebrations for volunteers to meet each other and become familiar with diverse components of the Stream Team program.

Assessment Methods:

- Solicit feedback on the program and effectiveness of outreach efforts.
- Track the number of schools and youth groups who participate in projects related to water quality and natural resource enhancements.
- Document the total number of volunteers who participate each year with Stream Team and the number of hours of volunteer time contributed.
- Track the number of new native plants that have been planted as part of Stream Team activities.
- Track the number of people who attend Stream Team related presentations and field tours.

P2 BMP Fact Sheet
Revise Comprehensive O&M Plans

Responsible Department/Division:
Public Works Maintenance Division and
Parks and Open Space Division

BMP Contact:
Maintenance Division Manager
Parks and Open Space Division Manager

BMP Description:
The City will continue ongoing review and, as needed, revision of O&M plans and practices for both new and existing public stormwater facilities, including both open (above ground) and below ground stormwater quality facilities. Effort will include review of other Public Works related operations and maintenance practices that may cause negative impacts to stormwater runoff. Additionally, the City will continue on-going review and evaluation of maintenance plans and operational practices for open drainage channels to maximize water quality and habitat benefits, provide necessary capacity for conveyance, and emphasize erosion prevention measures.

Background:
The City's NPDES permit requires preventing to the maximum extent practicable the discharge of anything except stormwater into local receiving waters. Stormwater System Operations and Maintenance (O&M) plans are key to realizing this objective. Through continuing analyses, reviews, and updates, staff can ensure that the latest and best technologies, methods, design, and equipment are employed in maximizing water quality and enhancing natural resources and habitats. The O&M plans are drafted utilizing input from all staff, including field operations personnel, and are then reviewed and approved by the O&M Review Team. The O&M plans address internal stormwater maintenance policies, erosion control practices, practices related to right-of-way, wastewater system, and utility management as well as procedures related to open channel maintenance and construction.

BMP Activities:
- Finalize draft of Public Works Maintenance Division Stormwater System O&M Manual.
- Continual research by staff of new stormwater treatment technology, products, and facilities.
- Continual review of stormwater BMPs to ensure maximum effectiveness and efficiency.
- O&M Review Team meetings on an as needed basis.
- Insure that regular review of plans is completed by operations staff.
- Review and update of the Stormwater System O&M Manual on an annual basis at minimum.
- Field monitoring of open waterway performance during significant storm events.
- Review and evaluation of Open Waterway Maintenance plans on an annual basis based on field observations and evaluation of effectiveness.
- Develop maintenance objectives and standards for publicly maintained stormwater quality facilities.
- Ensure that structures and/or mechanisms are in place to enable sampling, testing and evaluating effectiveness of representative water quality facilities.

Assessment Methods:

- Document changes to operations and maintenance practices and their effectiveness as they relate to specific stormwater facilities and BMPs.
- Finalize draft Stormwater System O&M Manual.
- Review the Stormwater System O&M Manual on an annual basis, revise as necessary, and track distribution of such revisions department-wide
- Document revisions to Open Waterway Maintenance Plans
- On-going review of all stormwater related operations and maintenance plans and procedures.

P3 BMP Fact Sheet
Tree Planting and Urban Forest Enhancement

Responsible Department/Division:
Public Works / Parks and Open Space Division

BMP Contact:
Parks and Open Space Division Director

BMP Description:
Continue to support government and community tree planting programs and to provide public information related to the multiple benefits trees provide for stormwater quality.

Background:
Trees are known to slow peak flow during storms and to absorb and hold large quantities of rain water, both in the above-ground mass and in the root systems. These characteristics can reduce erosive runoff and the first flush of oil contaminants from streets, stabilize soils, and buffer seasonal stream flows. Root systems have been found to effectively filter pollutants before reaching groundwater, especially related to landfills and bioswales. Trees offer many other environmental benefits such as air quality improvement, community ambiance, carbon sequestration, energy reduction, economic enhancement, and wildlife habitat. Additionally, tress in riparian areas along streams and open drainage channels provide shade, helping mitigate temperature increases in adjacent water.

BMP Activities:
- The City has several programs for tree planting, maintenance and education. Maintenance programs for the enhancement of the health of the urban forest include, where appropriate, offering one-for-one replacement of trees removed for health and hazard reasons. The City regulates new development to ensure that new subdivisions are fully planted with street trees. By policy, City-engineered street improvement projects require the addition of street trees in plantable spaces. The City supplies trees for NeighborWoods, a staff coordinated volunteer program, which plants trees along streets, in parks and along streams and monitors the trees through establishment for three years.
- The City has received Tree City USA recognition for 26 consecutive years. The Tree City USA program, a national award given by the National Arbor Day Foundation, is based on quantifiable measures of a city's commitment to tree care and includes an educational component built around Arbor Day celebrations in the community.
- Urban Forestry's educational efforts include several forms of citizen education, such as giving information in person, by phone, by e-mail, through newsletters and in group settings such as presentations to civic, neighborhood and professional groups locally and throughout the Pacific Northwest region.
- The Urban Forestry web page keeps citizenry informed and up-to-date about City programs and allows for electronic correspondence with City staff.
- Urban Forestry staff use CITYgreen software to provide public education about the quantifiable benefits of canopy cover related to stormwater runoff reduction as well as stormwater and air quality improvements.
- Collaborate with open waterway management staff to develop and implement tree planting plans for riparian areas along all waterways under City maintenance jurisdiction.

Assessment Methods:

- Document the number of trees planted through the City's Urban Forest Programs, Engineering Division projects, park development and improvement projects, and volunteer efforts.
- Maintain Tree City USA status, which requires quantifiable and verifiable measures, such as: per capita spending on tree planting; maintenance and management activities; as well as Arbor Day and other educational efforts.
- Document City-wide educational efforts related to urban forest best management practices that provide benefits to stormwater runoff quantity and quality.
- Track the progress on development and implementation of riparian tree planting plans.

P4 BMP Fact Sheet
Public Landscape and Vegetation Management

Responsible Department/Division:
Public Works / Parks and Open Space Division

BMP Contact:
Parks and Open Space Division Director

BMP Description:
Continue to evaluate and revise as necessary landscape and vegetation management programs for publicly maintained parkland, right-of-way, wetland, drainage channels and other natural areas to identify planting designs and O&M practices which will further limit the discharge of pollutant-laden runoff from these sites, will enhance the shade potential of waterway riparian areas, and will promote wildlife habitat where appropriate.

Background:
Creative and thoughtful design and maintenance of parkland turf and shrub beds, landscaped areas around buildings, planted roadway median strips, and other right-of-way planting strips or areas can help reduce the volume of stormwater and irrigation runoff from these sites. It can also help eliminate the need for fertilizer and pesticide applications which can contribute pollutants to stormwater or irrigation runoff. Most often this can be accomplished by a combination of using native plants and incorporating Integrated Pest Management (IPM) principles into O&M practices.

Vegetation maintenance is necessary along many open drainage channels in order to provide adequate capacity for the conveyance of storm event runoff. However, bank side and top-of-slope vegetation also provides multiple benefits for stormwater quality, in stream temperature control and wildlife habitat. Developing and implementing O&M plans and practices that balance these objectives is an imprecise science that requires on-going monitoring and evaluation as well as the use of new, innovative and alternative field techniques and practices. As with developed landscaped sites, incorporating IPM principles into O&M practices will help reduce the possibility of local waters being contaminated with fertilizers and pesticides.

BMP Activities:
- Stormwater and natural resource concerns are a primary criteria for staff from the City's Parks and Open Space, Facilities, and Engineering Divisions when developing designs for parks, shrub beds, street medians and planters, and other City maintained turf and landscape areas. Staff continue to research, evaluate and incorporate new stormwater and natural resource friendly landscape ideas into their designs in order to minimize impervious surface area runoff and maximize the benefits provided by native plants.
- The City of Eugene currently employs on-going IPM principles in all landscape and vegetation maintenance operations. This practice has proven very successful at reducing the use of pesticides and herbicides in developed parks, along roadsides, on undeveloped property, in wetland, and along open drainage channels. To formalize this, establish a policy for use by staff city-wide, regarding the City's use of fertilizers, pesticides and herbicides. Outreach to staff city-wide about the new policy.
- The City is continually looking for opportunities to use native and other "ecologically appropriate" vegetation in parks and other landscaped public areas. This also helps

reduce the need for fertilizers and other chemicals that many horticultural varieties of landscape material frequently require.

- The City continues to research new technology and techniques in landscape and vegetation maintenance that minimize the need for fertilizer and pesticides. Additionally, the City will continue to monitor new techniques, practices, and products which will minimize impacts to water quality and natural resource values in wetland, undeveloped parkland, and along open drainage channels. Modifications to existing vegetation maintenance practices and/or experimentation with new practices will be implemented where appropriate.
- The City has developed and begun implementing Open Waterway Maintenance Plans for a large number of open waterways under their maintenance jurisdiction. These plans attempt to achieve a balance between conveyance, water quality, and natural resource protection objectives. They emphasize using a selective approach to vegetation removal with a greater use of manual methods and using "greener" bio-engineering methods to help repair erosion and channel bank failure problems.

Assessment Methods:

- Track the implementation of new landscape or natural resource enhancement design ideas.
- Document modifications to existing landscape maintenance practices or procedures as well as monitor and evaluate their effectiveness.
- Track the quantities of pesticides, herbicides, and fertilizers used each year and compare with quantities used prior to the implementation of alternative practices and procedures.
- Document landscape design workshops and/or IPM training sessions held or attended.
- Document the number of miles of open waterway maintained using selective manual vegetation control methods.
- Amount of leaf compost City makes and how much is reapplied to City planting areas.
- Inventory of Native Plant Nursery salvage and grow-out species.
- Varieties and extent of native species planted on public projects.

B1 BMP Fact Sheet
Household Hazardous Waste Disposal

Responsible Department/Division: Planning and Development / Building and Permit Services Division

BMP Contact: Building and Permit Services Division Manager

BMP Description:
Continue to support existing efforts and programs within the Eugene metro area to inform citizens of local opportunities for the proper discard and disposal of their household hazardous waste materials. Continue efforts to support and promote facilities and programs that provide such opportunities.

Background:
The improper disposal of household hazardous waste poses a serious threat to local stormwater quality. Old paint, solvents and thinners, pesticides, bleach, drain cleaners, antifreeze, gasoline, used motor oil and other motor vehicle fluids can easily be flushed into the stormwater system if disposed of in yards, left uncovered in the rain, or poured down driveways or into the street. Supporting efforts to inform homeowners and tenants about where they can properly dispose of these products as well as supporting local household hazardous waste management facilities and efforts is an effective way to reduce the amount of these products that inadvertently make their way into the stormwater system and local receiving waters.

BMP Activities:
- Continue to collaborate with Lane County Waste Management Division staff on educational outreach via the development and distribution of brochures, fact sheets, and community outreach events.
- Work with Lane County to assess whether and how we can gather data on and report on what is done under the auspices of Lane County's Household Hazardous Waste Program.
- Continue participation in interagency pollution prevention group. Current grant application requests DEQ funding for a Household Hazardous Waste Educational Outreach Program. With approved funding, group will focus on hazardous waste prevention with painting, gardening and cleaning products and practices.
- Continue to require solid waste haulers to notify their customers of the Special Wastes Program offered through the Lane County Waste Management Division.
- In conjunction with ED1 (Stormwater Education), develop a paint outreach campaign that informs both professional painters and citizens about handling and care of paint and associated products.
- Work with local paint businesses to display and provide educational posters and fact sheets.
- Maintain a City website page that provides education on household hazardous waste and explains how to set up an appointment with Lane County Solid Waste to dispose of materials properly.
- Continue collaboration with local metro area partners to publish information in local phone books regarding waste prevention, recycling, composting, and disposal of household hazardous waste.

Assessment Methods:

- Document materials disbursed about household hazardous materials.
- Document participating businesses in "paint outreach" campaign and publications produced and distributed.
- Conduct survey to assess community knowledge of household hazardous waste program**.**

B2 BMP Fact Sheet
Solid Waste Management

Responsible Department/Division: Planning and Development / Building and Permit Services Division

BMP Contact: Building and Permit Services Division Manager

BMP Description:
Continue to evaluate and revise, as necessary, existing solid waste and recycling collection rules to address stormwater quality.

Background:
Improper and/or unregulated collection and recycling of solid waste has a serious potential for creating negative impacts to stormwater quality. High collection fees, infrequent or spotty collection service may lead to illegal dumping activity. Unregulated waste containers may be prone to leaking or spilling allowing pollutants to wash into the storm system. By continuing to monitor and evaluate local solid waste management collection efforts, the City will be better able to improve local regulations so that stormwater quality is taken into account.

BMP Activities:
- Continue to regulate solid waste and recycling collection activities within the city limits. Each collector is required to obtain a business license from the Planning and Development Department. The City also sets collection rates and standards but does not limit collection service providers to a specific geographic demarcation, or territory. Collection service providers are required to supply separate carts for garbage, yard debris and recycling which are designed and built to limit effluent impacts to the stormwater system.
- Eugene residents may contract with a provider for waste collection service or transport their own solid waste to a Lane County transfer station. The vast majority of residents and businesses subscribe to a collection service with only a small percentage utilizing a "self haul" approach.
- Continue to revise and enforce collection standards that reflect local goals and state of Oregon mandates, notably the 1991 Oregon Recycling Act. All solid waste collectors must transport waste and recyclables in a way that minimizes odor and keeps materials from dropping, spilling, or blowing from the vehicle. Curbside residential recycling must be provided weekly, with a rigid container for recyclables, and haulers are required to provide recycling information to both residential and commercial customers.
- Continue to support a minimum of biweekly collection service for organic materials and to provide backyard composting classes for those residents without collection service.
- Continue to support pilot project efforts such as allowing food waste to be combined with other organic yard debris collection.
- Continue to implement a nuisance abatement enforcement program that provides rapid response to illegal dumping of garbage, yard debris, or other solid wastes materials.
- Continue to monitor state regulations relating to composting facilities and the proper management of stormwater runoff from these facilities.

Assessment Methods:

- Document planning and coordination activities.
- Report on implementation of commercial and residential recycling programs.
- Report on legal authority reviews and lobbying efforts.
- Document associated educational efforts.
- Track implementation and effectiveness of pilot programs and/or revised collection practices.
- Yard debris volumes.
- Garbage volumes.

W1 BMP Fact Sheet
Address Impacts of City Activities on Water Quality

Responsible Department/Division:
Public Works / Wastewater Division

BMP Contact:
Wastewater Division Director

BMP Description:
Implement the results of the City's environmental assessment of City activities that have the potential to impact the water quality of Eugene's stormwater and receiving waters.

Background:
A city-wide environmental review was conducted to evaluate City activities that have the potential to positively or negatively impact the environment, including the water quality of Eugene's receiving waters. The assessment, completed in 2001, provided a list of all City activities with the potential for environmental affects, and a screening of these activities to determine whether they have the potential to affect water quality specifically. Information about City activities collected included: frequency of the activity; number of locations where that activity occurs; types of materials or equipment used to perform each activity; and type and amount of waste reclaimed, produced, or managed by each activity. Then each activity was evaluated for degree of impact (including water quality) and ranked according to degree of positive or negative impact. The assessment is being used to guide the development of new policies and procedures intended to further reduce the City's negative impact on water quality.

BMP Activities:
- Continue to work with Fire Department staff to identify and implement procedures to mitigate or otherwise manage runoff from fire suppression and clean-up activities.
- Continuing with the highest priority impacts on water quality, develop policies, programs and procedures to reduce the impacts of City activities on water quality.
- Implement programs and procedures

Assessment Methods:
- Develop report on identified significant water quality impacts
- Develop procedures and practices to reduce water quality impacts
- Provide training to affected staff

Source: Second Annual Report Part II – Evaluation Report (December 2005)

W2 BMP Fact Sheet
Industrial Stormwater Management Program

Responsible Department/Division:
Public Works / Wastewater Division

BMP Contact:
Wastewater Division Director

BMP Description:
Continue providing oversight of stormwater discharges and washing activities from industrial facilities, screening new businesses for those that may require NPDES Permits, conducting inspections and providing technical assistance to industries with NPDES Permits, and responding to spills at facilities with permits.

Background:
The Industrial Stormwater program objectives are to minimize to the maximum extent practicable the discharge of pollutants from industrial facilities with NPDES permits to the City stormwater drainage system. Program objectives are accomplished by ensuring that appropriate industries have obtained an NPDES permit and are complying with permit requirements. City staff continues to evaluate new and existing businesses to determine if an industry requires an NPDES permit. Inspections of these industries are conducted by the City to determine whether a permit is needed. Industries requiring an NPDES permit are notified by the City. The City reviews permit application for completeness and forwards appropriate documentation to DEQ who issues the permit. Stormwater Pollution Control Plans are submitted to the City for review. Plans are returned to the industry with comments when incomplete. Staff obtain, review and track industry self monitoring data and maintain a data base of benchmark exceedances. Chronic problems may result in inspection which is coordinated with the DEQ. Failures to comply with NPDES permit conditions or to obtain a permit as required by the DEQ are referred to the DEQ for enforcement. Staff will notify industries of the requirement to review and modify their SWPCP plan when benchmark exceedances occur. Sampling of industries may be conducted in relation to chronic exceedances of benchmarks, complaints, or implementation of the reduction in monitoring option. The City responds to complaints concerning illegal discharges or spills at industries with NPDES stormwater permits and takes appropriate enforcement action under City code for the discharge of materials not authorized under a NPDES permit.

BMP Activities:
- Manage 1200Z and 1700A NPDES permit files
- Evaluate new and existing facilities for requiring NPDES permits
- Determine permit compliance with existing NPDES permitted facilities.
- Evaluate SWPCP completeness and update requirements.
- Review annual Discharge Monitoring Reports for permit compliance.
- Maintain data base of Discharge Monitoring Report data.
- Issue Request for Corrective Action letters for permit noncompliance.
- Initiate enforcement referrals to DEQ for ongoing noncompliance issues.
- Conduct site inspections at existing and potential NPDES facilities.
- Conduct periodic monitoring for compliance determination.
- Provide technical assistance to permitted facilities.

Assessment Methods:

- Track current number of active and terminated 1200Z and 1700A NPDES permits.
- Track current revision of Stormwater Pollution Control Plans and industry self-monitoring data.
- Maintain lists of benchmark exceedances and identify chronic problems for follow-up activities or referral to DEQ.
- Track current number of monitoring reduction waivers and qualifying parameters.
- Maintain spreadsheet of Request for Corrective Action letter issued.
- Track number of site visits and inspections conducted at NPDES facilities.

W3 BMP Fact Sheet
Bacteria Pilot Study

Responsible Department/Division: Public Works / Wastewater

BMP Contact: Wastewater Division Director

BMP Description:
Conduct a pilot study in the Amazon Creek stormwater basin to confirm the existence of bacteria contributions from Eugene's MS4 system, and identify the sources of bacteria. If appropriate, apply specific BMPs to address these specific sources and measure BMP effectiveness using quantitative and qualitative methods.

Background:
The A3 Channel, Amazon Diversion Channel, and Amazon Creek are on the state's 303(d) list as "water quality limited" for bacteria. Stormwater monitoring data indicates that bacteria concentrations in Eugene's stormwater are above the state water quality criterion and therefore likely contribute to the bacteria problem. A pilot study of the Polk Street sub-basin will be conducted to achieve the following goals: 1) confirm whether or not Eugene's MS4 is a contributor of bacteria to receiving waters; 2) to better understand bacteria source contribution areas through observation and monitoring; 3) design and implement BMPs to reduce bacteria loads to stormwater and Amazon Creek; 4) assess through additional monitoring BMP effectiveness in reducing bacteria loads to stormwater and, hence, Amazon Creek. Knowledge gained from BMP effectiveness in the Polk Street sub-basin will be assessed for application to other areas within the Amazon basin with the objective of reducing bacteria in the A3 Channel, Amazon Diversion Channel, and Amazon Creek.

Common sources that could potentially be an issue for Eugene's stormwater system include wildlife waste (e.g. birds, nutria, mice, squirrels), domestic pet waste, human activities and sediment (bacteria can accumulate and concentrate in deposited sediments).

Eugene's proposed bacteria reduction strategy is a combination of targeted education (BMP A2), existing systematic field investigation (BMP M7) and illicit discharge programs (BMP M1), existing maintenance practices (BMP M5), new water quality development standards (BMP E4), monitoring to determine natural background bacteria levels, and this new BMP W3: pilot study to confirm bacteria source(s) and to evaluate the effectiveness of BMPs. The bacteria pilot study includes three phases: 1) source identification, 2) BMP implementation, and 3) evaluation of BMP effectiveness.

While the study will be conducted primarily within one selected sub-basin of the Amazon Creek major basin (Polk Street sub-basin), discrete areas outside of the sub-basin may also be considered which would help to efficiently meet study objectives. The stormwater system for the Polk Street sub-basin serves an area of about 1009 acres. Land use consists of 58% single-family homes, duplexes and mobile homes; 21% roads; 6.7% vacant areas; 4.5% park area; 4.4% educational, and 2.6% multi-family.

Source: Second Annual Report Part II – Evaluation Report (December 2005)

See City of Eugene's Stormwater Monitoring Plan for more detailed information about monitoring for the Bacteria Pilot Study.

BMP Activities:

- Generate maps of the stormwater system for use in selecting pilot study sub-basin, locating monitoring stations, informing BMP selection and design, and assessing BMP effectiveness. (Study Year 1, City's Fiscal Year (FY) 07)

- Assess conditions within the selected sub-basin, including for example the amount, type and location of wildlife and domestic pets; location and number of domestic animal waste piles; conditions within commercial loading areas, recycling areas and garbage dumpster areas. Collect and test water quality samples for bacteria at selected locations in the sub-basin to help determine potential sources of bacteria. (Study Year 1, FY07)

- Based upon the results of the first phase of the study, select appropriate BMPs to specific identified or suspected bacteria sources. Design, construct, and implement BMPs as appropriate. BMPs selected may include: door-to-door contact with business owners and residents; direct informational mailings; modifications to catch basin cleaning frequencies; specialized (bacteria-related) storm drain stencils; doggy bags in parks; presentations to neighborhood groups and to school science teachers; modifications to park rules (e.g. "no feeding the wildlife"); and modification of waterway maintenance practices. (Study Years 2 & 3, FY08 & 09)

- Assess conditions within the selected sub-basin after BMPs have been implemented. Collect and test water quality samples for bacteria at selected locations in the sub-basin to help assess the effectiveness of BMPs implemented. Analyze data to assess the affect on bacteria levels from the application of selected BMPs. (Study Year 3, FY09)

Assessment Methods:

- Document (pre-BMP implementation) observations with check sheets, notes, and digital photos.
- Document (pre-BMP implementation) water quality monitoring data and analyses.
- Document type, location, design, and installation of selected BMPs.
- Document (post-BMP implementation) observations with check sheets, notes, and digital photos.
- Document (post-BMP implementation) water quality monitoring data and analyses.